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The Lights and Shadows of Medical

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THE

Lights and Shadows of Medical Science

AN ADDRESS, DELIVERED FEB. 27, 1872,

BY

EZRA M. HUNT, M.D.,

PRESIDENT OF THE ALUMNI ASSOCIATION OF THE COLLEGE OF PHYSICIANS AND SURGEONS, MEDICAL DEPARTMENT OF COLUMBIA COLLEGE, NEW YORK CITY.

PUBLISHED BY ORDER OF THE ASSOCIATION.

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ADDRESS.

It is becoming, my medical brethren, that as Alumni of the College of Physicians and Surgeons, we should, year after year, thus meet together, to show our interest in the institution of which we are graduates, and to renew the professional and social associations of earlier days.

There is a principle in our natures which, when undisturbed by jealous rivalry or exclusive egotism, always creates a bond of sympathy between those of kindred occupation, and there are special reasons why this should obtain in the medical profession. The pursuit of our science and the practice of our art has much in it that is toilsome, rugged, and severe, and is so separate and distinct from other callings that the laity cannot be expected to know or appreciate its peculiar exactions, as can those who have an identical experience. Those not drawn away by outer forces are naturally drawn to each other. The companion in arms knows best how to greet a fellow veteran; and bound together, as we are, in the same pursuit, it is right that now and then we should gather at the old homestead and, like brethren, exchange words of common sympathy and greeting.

And I know not why it is that there is so much less enthusiasm in the meetings of professional men in the halls from which they went forth to their special vocation in life, and in which they received their higher and specific preparation, than in those gatherings of college alumni at the institution in which they received their primary and academical training. It is not because we had become too old for the sympathies of youth, for quite beardless and unbent do we enter upon our professional career. It is not that there is anything ascetic, or cold, or formal in our department of study. It is not that we do not become interested in our pursuit, in each other, or in our professors, for as to each of these we have an enthusiasm seldom surpassed in academic curriculum.

I think it must be attributed to the fact that in our medical course we are less distinctly divided into classes; that by the duties of practice we are kept more closely to the particular locality in which we dwell, and thus, not meeting with each other, lose acquaintance and remembrance; and more than all, to the fact that professors and alumni do not make that effort to keep up these associations, which is made in the interests of collegiate institutions. And pardon me for saying that it seems to me that this is one of the things which we need to think of, not only as a personal gratification, but as a means of advancing the interests of our calling.

If each class on its graduation appointed a class secretary, likely to remain in the city, through whom it could communicate their localities; if in connection

with each meeting, some one class, after ten or twenty years of graduation, made of it a time for their own special gathering, and if our distinguished faculty and trustees would all be as sure to favor it with their presence as when they gave us our diplomas, I believe it would result in substantial benefits to the College we love, and in the initiation of an interest which would manifest itself in awakened enthusiasm, in enlivened effort, in material endowment, and in a general promotion of the high interests of our Alma Mater in particular, and the medical body as a whole.

As we are not met to-night as a pathological society, or a county medical society, or as an academy of medicine, it will not be expected of me to furnish a clinical thesis or medical essay ; but we may, perhaps, spend with advantage a little time in taking a general view of the lights and shadows of medical life, as they vary with the progress of the ages and with the changes in our science, in order that we may see how much and how far our prosperities exceed our adversities, and what the superior incitements of the modern physician are.

It is not concealed from us that we live in times, in some respects, particularly trying to the assiduous and devoted scholars and practitioners of our art.

It is not to be expected that the skepticism and liberalism of our day should confine itself to disputing the facts of science, of psychology, of theology, etc., or that free thinking, which too often means loose thinking, should pass us by without a visitation—and especially as our science affords special opportunities

for the raising of doubts and the promulgation of embarrassments.

We are dependent upon arrays of facts, upon long and careful deductions from repeated and manifold experiences, not an integral but a differential calculus, from which are to be eliminated many sources of error; and in no art is it so easy to cloud truth or to pass off error while clad in its livery. Hence, in public estimation, elegant pretence is untested and popularity is accorded to those who are utterly unable to analyse disease or skilfully treat those few cases which are the real tests of ability. No one knows so well as a conscientious and learned physician how easy it is for a smatterer to palm himself off on the popular mind, if he only have address, shrewdness, and a superficial knowledge; and most of those who have succeeded in our profession are conscious that had they combined with their real knowledge, more of the plans of medical pretense, they would, pecuniarily, have been abundantly more successful.

Hence, we see how it is medical charlatans pander to the taste and notions of the popular mind, and how successful they are in doing it.

Enormous sums are expended each year in the puff and manufacture of patent medicines, most of which are absolutely worthless, and the whole system of their use ignores that careful study of the physicians which seeks to diagnose the special ailment of his patient and suit his remedy to the person and the disease. How these "hang their banners on the outer walls;" how every fence, and corner, and railroad outlook, and tree,

and rock, is plastered and inscribed, so that one can scarce get hold of a fossil from California not labelled vinegar bitters, or a rock of the Palisades without an inscription of soothing syrup. How artists and poets, and theological doctors lend their names and influence to whole systems of irregular practice, which rest on a course of argument that would upset theology if it did medicine, and how the learned physician has occasion to feel almost ashamed of himself, and disgusted with his profession, when he sees, not only the ignorant masses, but some of those who aspire to be leaders of society, lending themselves to the support of principles they have never investigated, and of practice they have never tested, except in the narrow circle of self-diseased infliction.

How often do we see those who make a great proficiency in their own calling, when they come to the science of medicine "so uninformed as to be incapable of appreciating their own ignorance of what we know."

Says a recent writer (Rev. Dr. Atwater, April, 1871), in the *Princeton Review:* "Medical practice is largely of such a nature that it is not like nearly all other professions, capable of being passed upon by competent judges. The professional practice of clergymen and lawyers, and in nearly all other professions, is in itself, or its results, in the presence of those competent to judge of its merits, and capable of knowing whether it betrays inexcusable ignorance or culpable negligence. But not so with the physician. How is it possible for ninety-nine in a hundred of his patients to know about his medicines, their nature, efficacy, or adaptation to

the case for which they are prescribed? And, in case of recovery, or a fatal issue, how impossible is it for most of them to know it was by the help, or in spite, of the doses administered? This is what facilitates the prodigious success of quacks and makers of nostrums and panaceas in this profession. The manufacture of patent medicines is, next to the seizure of great railroad franchises, or the ingenious robbery by stock-watering and plundering, the surest road to coarse and ostentatious opulence afforded in our country. And if the prince of railway robbers and gamblers dazzles the fashionables at watering-places with four-horse turn-outs, gayly caparisoned, the prince of patent medicine quacks eclipses him with six studs and proportional attendants, all aglare and ablaze with trappings not less brazen and gilt than their owner. While these features of medical practice tempt vast numbers of practitioners to neglect the study necessary to keep them abreast of the times, and acquainted with the ever-varying forms of disease, with discoveries in materia-medica, and details of practice; on the other hand we rank among the noblest of our professional men, those many physicians who surmount these temptations to indolence and ignorance.

"The studious physicians of our own and past days belong to the highest order of intellectual men. Although, outside of the profession, we are free to confess that no kind of literature whatever impresses us more strongly with the ability, the culture, the discrimination in thought and mastery of style, than the

higher class of medical books; especially the standard treatises on medical practice.

"We well recollect hearing the late Dr. J. Addison Alexander (and there could be no higher authority in such matters) express his wonder at the power of style of the standard medical writers, and lamenting the comparative inferiority and helplessness of other professions in this respect."

The incidental testimony of such men may well inspire us to increased enthusiasm.

Again, we cannot but recognize that the study of the science and the practice of the art of medicine is fraught with many real and intrinsic embarrassments. It involves investigation of the most precise and astute character. It is not merely a science but a family of sciences, from a knowledge of which is to be deduced rules regulating the period of human life, and dealing with all those oscillations and variations from internal or external forces to which man as a machine, as a mind, is subjected.

Having mastered one disease, a hundred more are waiting for analysis; having relieved one patient, the very next one that presents himself may have a totally diverse complication and obscurity of disease calling for the highest perfection of knowledge and experience in a different line, while judgment, that highest quality of mind, that condensed and resultant abstract of all knowledge, must ever be on its balance, that it may see what is to be thrown in each side of the scale and how the equilibrium of life is to be maintained.

The general practitioner is called upon to investigate departments, any one of which is full study for a lifetime, and has to do with a range of physical and psychical laws, with studies of relations of cause and effect—of disease and remedies—enough either to appal the stoutest heart, or to lead one with heroic determination to put on the armor and endure hardness as destined to achieve. And, often, there must not only be decision, but quick decision; not merely a cool determination of methods, but an actual application of them with celerity, or else the patient is gone while the decision is pending, or its results are unapplied. I know of no profession in which there is more need of that thorough previous discipline of mind which develops the reasoning powers, and, at the same time, cultivates the love of patient investigation and laborious research, by which experiment can be followed up and followed out until it ripens into established facts and practical experience.

It is well for us not only to be aware from the start, but to remind ourselves all along our medical practice, that the task we have undertaken is a very difficult one—to admit that our art has manifold uncertainties, just because metaphysics and natural philosophy have manifold uncertainties. But, admit, too, that conscious of these facts, we are also conscious that there are basic and immutable principles on which to operate; and, admit, too, that we intend to follow them up and follow them out, until one after another mere hypotheses are eliminated and real facts established.

That is what makes any science a real science, and

any art a real art; and difficulties and embarrassments do not involve permanent uncertainty as to results, so long as we recognize them and prepare ourselves to deal with them.

In fact, the profounder any study is, the grander is its pursuit, if so be it has some well-ascertained principles, and by its past practical application, and by success in discerning its bases, we have assured ourselves that progress and definiteness is attainable.

Any experimental science does not reach its climax with the quickness of mathematical or demonstrative reasoning, but yet we are to know that experiment makes the word, and the fact experience; and that experience arrives at certainties which are not presumptive in placing themselves alongside of the conclusions of Mental and Moral Philosophy, and the delineations of a mathematical problem.

All of our Natural Philosophy rests on just such a substructure; and yet Newton is as sure as Euclid, and Faraday as positive as McCosh.

With this hasty glance at some of the real embarrassments of our calling, we pass on to inquire what are the chief incitements of the Modern Physician which encourage him in grappling with real difficulties—in contending with quackery and in practising an art as to which his well-meaning patients are often skeptical because necessarily uninformed.

We answer, 1st. In the increasing definiteness as to our knowledge and its applications.

If we but compare the *status* of our profession today, and the sources of its information, with what ob-

tained in the years that are past, we have the most abundant reason to congratulate ourselves on what has been secured.

Sir Thomas Watson, in a recent edition of his Practice, says: "Considering the rapid advance of medical science during the last fourteen years, the present edition would be worthless if it did not differ from the last."

Compare, if you will, the anatomy of the old doctors, who supposed the arteries to be air tubes, and knew as little of the circulation of the blood as we do now of the development theory of creation, with that exact knowledge by which we know not only the organs and media of circulation, but the pneumatic and hydrostatic principles which govern it—the nature of valvular action, etc.

What an advance on alchemy, with its elixer crucible and its unguarded experiments, are the wonderful developments of modern chemistry!

What a change from the crude remedies of by-gone days to the well-defined action of elegant extracts! Sir Thomas Browne in the introduction to his Religio Medici, excuses his disconnected thoughts, by the fact that when he was in the midst of study, he was often drawn aside and perplexed by the necessities of uriscopsy. Imagine the doctor with no tests, no reactions, no microscope, attempting to draw deductions as to treatment, and compare it with the real advantage definite knowledge now gives.

Of Paracelsus, the great physician and chemist of his age, Fleming in his Philosophy says, "that he be-

longed to a school who mixed enthusiasm with observation, alchemy with theology, metaphysics with medicine, and clothed the whole with a form of mystery and inspiration." Old Pare considered Ranula "as cold, moist, gelatinous matter, derived from the brain and transplanted to the tongue." In fact, as to Physiology, Pathology, Histology, Materia Medica, Gynæcology, Physical Exploration, Quantative Analysis and Hygiene, we are all aware how much they are the outgrowth of very modern investigation. Now, Bence Jones published a large octavo "on the applications of Chemistry and Mechanics to Pathology and Therapeutics," and so Carpenter "on the Microscope and its Revelations," and thus we have whole octavos on single subjects in manifold departments. In fact, there are doctors living who have seen the one science of medicine like a cactus or Rhododendron—once only enough of character and distinctiveness to claim to be a species—now blooming right out with clusters, each admirable in itself, and together entwining into a garland, which pronounces its possessor a victor in his struggle for mastery over disease.

Nor is our success alone in what has actually been attained. Advance, in any science or art, consists not less in knowing how to learn what we do not know, than in actual knowledge already secured. Bacon and Newton did not so much for philosophy by what they themselves discovered, as by giving prominence to methods of investigation, which served as a key to unbar many a combination lock.

So long as men undertook to determine the facts of Nature by assuming laws, and then reasoning from them in the *á priori* method, there were intrinsic and vital embarrassments to the progress of medicine as a science, and hence to its classification as an art. But, so soon as the method of induction had secured general recognition, and come to be felt as legitimate a mode of arriving at truth as the mathematical or logical system, just so soon it became certain that our science had received an impetus that would result in the most important accessions to its practical applications. No longer would it be the business of the physician to be an Esculapius, amid disjointed and venturesome experiments seeking for specifics, or, a Galenist contending against all the chemists; or, even a Hippocrates dealing in aphorisms, which, at best, could be but shrewd guesses at truth. Now, not only from causes could he seek effects, but from effects with which we are always the more familiar, he was taught that it was legitimate to look for causes. Hence, at once, he was to become a great fact-gatherer—a great observer; not merely empirically to seek a remedy, but still more to infer from his facts and symptoms those reliable laws which cause the result he sees, and so to arrive at general principles which underlie the system, and enable us not only to account for this or that phenomenon but to interpret and investigate whole chains and series of occurrences in health and disease.

He now can go to work, not merely to collect the facts which make knowledge, but "to understand the

laws by which the facts of experience are determined," and so to make science, which is knowledge utilized; which not only knows what has happened, but, having comprehended the law, knows what will happen; knows the bearing of facts one upon another, and thus stands by the bed-side as it does in the labratory or dissecting room, knowing what symptoms mean, and even what other symptoms will occur, and what they, too, will denote. Now, it is interesting to notice how this method, born in our century, had its procession of application.

Commencing with astronomy and the law of gravitation, it soon advances to physics in general, but specially to chemistry and the laws of growth and structure, and comes even to be applied to metaphysics and theology.

Medicine, as a department of physics, was entitled to propulsion at once; but, there was the crudity of former systems, the stubborn adhesion to systems of empiricism, which thought themselves science, and practical at that, and scouted new methods as hypothetical and absurd.

Then, there was need that such sciences as chemistry, botany, and the laws of structure, growth, waste and repair, et cætera, as applied to other departments of Nature, should be investigated first in their own individualities as sciences. Says Whewell: "Medicine in its original and comprehensive sense, as one of the great divisions of human culture, must be considered as taking in the whole of physical science."

In due time, man, the greatest marvel in this work-

shop of Nature, would not escape, and the physician who was to be the scientist of this department, would not be asleep in his professorship any more than the physicist would be in his. "If," says J. S. Mill, "there is anything that deserves to be studied by man, it is his own nature and that of his fellow men; and, if it is worth studying at all, it is worth studying scientifically."

And, one after another medical men began to accept that situation; one and another caught the gleamings of the light as the hills catch the gleamings of the day, and started out on this method of work. And the men are yet living and have been, or are our preceptors, who were thus pioneers in whole departments of physical science relating to man—searching for matters of fact in the human organism in health and disease, scrutinizing these facts as never before facts in our department were scrutinized—because the facts were the direct and close posterity of great ancestries of principles, the understanding of which would preserve and elevate the posterity of humanity.

And if, in any one department of science more than another, there has been for the last thirty years diligent collection, classification, and comparison of facts, and careful and tested deduction of laws therefrom, it has been in this science of medicine.

No pursuit is more exacting in its demands that experiments shall be tested over and over again before they are admitted as facts, and the medical philosopher, having ascertained, beyond question, the facts, then goes to work to interpret their language, and from

them to deduce those laws, some of which have already, by their brilliant and vital life-saving deductions, raised our study to noble heights of scientific excellence. Those who have been unwilling to make of medicine so much of a study, observation, and toil, have been wont to discard or to depreciate the value of such work; but theory and practice have, by actual results, proven themselves to be so interwoven, that one would now as soon be a weaver without the web as to be a doctor without seeking to interweave his facts with the foundations of facts, and thus to be an observer of principles as well as of symptoms.

The last few years have shown bases of deduction and evolved principles of investigation, which we know to be fraught with weightiest results in their influence upon the practical advancement of our profession.

The whole system of Histology and the methods of investigating pathological changes apply to the study of whole ranges of truth. By methods of exclusion, disease is often actually ciphered down so as to present a problem numbered like a proposition of geometry, and then we go at it with accumulated facts, with clinical experiences, so as still further to eliminate questions as to type and tendency, so that the "I know," takes the place of the "I think," and whatever may be the result the doctor knows his treatment to be a constant protest against the tendencies of the disease. In fact, the most embarassing thing now-a-days, to the conscientious practitioner, is in a given critical case, to know that a saving amount of knowledge is secured as to the disease in question, and yet,

by reason of the variety and multiplicity of his duties, he is not able to secure it. "Fools rush in where angels fear to tread;" but the busy general practitioner often feels that he would like to be a thoroughly posted specialist on every class of cases coming under his eye.

Now-a-days more is to be feared from the imperfections of personal knowledge, *i. e.*, from the uncertainties of doctors than from the uncertainties of medicine.

Never was there a day when a patient needs to be so much afraid of superficiality or half knowledge, or so reliant upon full-trained skill.

Of nothing else is it so true now as of medical science, "that a little learning is a dangerous thing."

To-day I was looking at the post-mortem photograph of a deceased friend, taken by an eminent artist, and it was so perfect, so life-like, that I said to myself, what an art is this! what exactness! what perfection! How every line of the face is distinct, how the very eye, not statue-like, but life-like, looks at me as if with living retina.

Having occasion to consult Niemeyer and Vogel the same day, as to some cases of disease, so clinical, so vivid, so exact was the description, that I could not but say, "Well, here too I have a photograph, and if one art is wonderful so is the other."

We have reason, also, especially to congratulate ourselves upon the wonderful helps that mechanics and collateral science have afforded to our department of study. The microscope itself, with its constantly increasing uses, and its wonderful perfection, has not

only opened a new field for investigation, but has enabled us to study cause and effect, and disease in its remedies and results, in such a way as may well excite enthusiastic zeal.

A crude artist, to whom Reynolds was once exhibiting a picture, said, "Mr. R., with what paints did you execute this?" "With brains, sir," was the reply.

And so the physician, to-day, when asked how he discovered this or that disease, can reply, "With eyes, sir;" not mere human eye, but lenses a thousand-fold; looking not alone far as the eye can reach, but as if the film between the finite and infinite were couched, and human dimness brightened into unrestrained perception.

And so with the layrngoscope, the spectroscope, the opthalmascope, the apparatus for micro-photography, etc.

Prof. Gairdner, in a recent lecture in Edinburgh University, says: "From the evident care for scientific training, in the University of Berlin, and the number and character of the men who are found to devote themselves to experimental researches of a difficult and not directly remunerative order; from the facilities given to such researches, in the anatomical, physiological, chemical, and pathological departments, under the direction of the various professors; with the liberal grants for rooms, apparatus, and materials; I came away convinced that medical science and scientific training, which are unhappily in danger of being starved in England and Scotland, thereby cutting away from the practical depart-

ment the staff on which they ought to lean, are fostered in the German universities as the very life and light of medical art. In almost all our medical schools, in this country, we greatly need a physiological and pathological laboratory, where, in close connection with the hospital, the work of instruction in the analysis of the human or animal body, its secretions and excretions, normal and pathological, may be constantly carried on in public and private classes, and where, besides investigations into the properties of remedies and poisonous substances, investigations such as those brilliant ones of Liebreich on the properties of chloral-hydrate may be systematically pursued."

And in view of the progress already made, and of the methods already perfected for new and more exhaustive investigation, and of the vast amount of knowledge viable, but not yet sprung from the brain, is there not a call upon the physicians of our land to provide a school of medical science, having higher aims and giving greater facilities than any now upon our Western continent.

We are not proposing that there should be any specially new methods of instruction, so far as the college curriculum is concerned, but what we do wish to see is a higher school, which shall be ready to receive all those who, by diligence or competitive examination, entitle themselves to further pursuit and enable them, under favorable circumstances, to pursue medicine and its collateral sciences, so as to arrive at fuller knowledge of those great truths and facts which underlie the study of all that is human and material in man.

If your attention has not been turned to it, you would be surprised to find the change which has taken place, among young men, in the grasp for medical knowledge, in our own country, within the last twenty years. A far greater number than formerly of the members of our best medical colleges have had a previous collegiate training, and although the study of medicine is very far more expensive than that of law or theology, yet, I am told, that not over one-third of those who graduate from this institution, for instance, go directly into private practice. Having expended one thousand or twelve hundred dollars more than has the theologian or lawyer in his preparation, they are willing to spend one, two or three years more before even seeking a locality. Besides the numbers who go to our own hospitals or to private infirmaries or specialties, from fifty to sixty are to be found at Berlin or Vienna, and many more in some of the French or English schools.

Now this very fact is a noble warranty for the founding of an institution that shall deal only with graduates of medical colleges, admitting them to special courses, giving the highest advantages for pathological and physiological investigation, for the studies of the laboratory and for all those departments which must necessarily be studied in this way before entering upon practice, if the highest skill will be secured.

Hospitals, as at present constructed, are not sufficient for those purposes, and, while visitation and association with them is important as collateral to such a

plan, it in nowise accomplishes the same result. And I look forward with hopefulness to the day when our wealthy physicians will feel it their privilege to provide some such facilities; when our professors, while receiving their full pay for college duties, will be willing to give to their own kith and kin such gratuitous help in this line, as they now give to the public by their attendance on public institutions, and then the American student may have afforded such opportunities as shall place our profession in the very first rank of the sciences, and it may be that some munificent lay philanthropist, for the cause of humanity, will endow some such institution.

As dealing with human health and happiness, as conserving the highest material interests of society, it is entitled to the fostering care of the *government*, even under republican institutions, and if only the facilities are provided, the medical profession will not be slow in giving evidence of an enthusiasm whose results will accumulate, not only in addition to the great amphitheatre of science, but to the still grander arena of art—of that art which teaches the preservation of health, which, when this fails, grapples with the adynamic tendency of disease, and, when this effort fails, soothes and comforts the pains and struggles of suffering and dying fellow men.

Only thus can we have full scope, for to get experience we must have experiment—we must have this kind of investigation. Books are good, but they have not as full a relation to our profession as to the others, but only give us clinical advantages, and these other

advantages, and we will consecrate ourselves still more to this noble philanthropy, and show to the world that we will not only contend against the effects, but so dry up the sources of disease as to make the average man, and the average woman, and the average child, of the twentieth century, an improvement upon those of the nineteenth.

Our system of development, though it be not Darwinian, shall bring us nearer back to the idea, "In the image of God made He him."

I know there are those who talk so much about the practical, and even the clinical, as rather to underrate some of the scientific research of medicine, and mean by collateral something very subsidiary, but to learn how, and what to investigate, requires something else than mere presence amid disease, and I am glad to know that the discoveries of the last few years have shown more than ever before the intimate relation between medical science and successful practice.

Even when the persons pursuing in this way do not, from lack of time or fondness of study, themselves become skilled or noted practitioners, they are, nevertheless, the men who kindle for us the watch-fires, and light the signal-torches, and enable us to use the light and radiance they evolve for insight into disease, and for bringing to the light the hidden things of disease, that that which is "turned out of the way may rather be healed."

"The observation of phenomena," says Cooke, "must always be the occupation of the great mass of scientific men." To none does this apply more than

to the physician. But the phenomena are only partly clinical, and beside the recorded experience of the busy practitioner, we need also the recorded experience of the scientist who has more leisure for dissection, analysis, study, or microscopy; for all the collateral aids which are now so enriching the science and the art of our profession.

Another of the incitements to the modern physician is the bearing which our profession has upon the moral elevation of society.

It is not merely man, the animal, which comes under the cognizance of the physician. Herbert Spencer has said, "that the first thing to do with a man is to make him a good animal;" and so, if this were true, it would be no inferior calling, but the intellectual, moral, social, civil, all that makes a man, is interwoven amid the duties of our art.

Not to speak of those advantages for moral influences which we enjoy by reason of our intimate intermingling with the homes of the world's people, the relations of hygienic and sanitary conditions to the elevation of moral status are now too plain to be regarded as any longer latent.

The longing, for instance, for "ardent stimulus" in low and crowded districts is a real call of nature for some temporary vitalizer to counteract the depression of foul air and filth, and Chadwick was right when he proposed and demonstrated the building of good tenement houses in good districts as a method of drying up the fountain of crime.

Every new advance in our science more and more

demonstrates disease as the result of sin—of a disregard of those high organic laws which underlie the relation of men to each other and to the world in which they dwell—and in helping the physical status of the world, nowise indirectly are we helping the metaphysician and the Christian in their attempts to liberate reason from the domain of illusion and bad logic, and conscience from the domain of perverted morals. The solving of the great problems of life in manifold aspects must submit to our handling—nay, more, the physician is the very one who most naturally and properly collects and compares the testimony of collateral sciences and sits as fittest judge on the great questions of humanity.

Commerce waits with earnestness for our verdict as to the cause and course of epidemics. The great interests of insurance ask us how to adjust, in proper balance, the probabilities and possibilities of disease. The jurist, more than ever before, is on the alert to detect the bearing of medical science on human jurisprudence, and it is wonderful to see how great interests of legislation, not only those of crime, but those for the prevention of crime—for all that relate to the welfare of the citizen, is beginning to feel the wand and the tactile touch of medical facts and principles.

Education is putting to us endless queries as to mind and body culture, and I have heard the opinion ventured that fifty years more will see medical men looked to as the great educators and authorities for methods of education, because of the bearing of great physiological, psycological facts upon this whole subject.

And theology itself, how it begins to look to the position of medical science and the views of medical men. Why, you cannot take up a treatise on systematic theology, such as the recent one of Hodge, for instance, without finding the names of medical men scattered over its pages, and their views discussed and their opinions quoted with a deference or with a seriousness that shows how outreaching and interpenetrating are the great investigations of the medical mind.

The reasonings of Hartley, Priestly, Carpenter, Mayer, Lionel S. Beale, Dalton, Dr. H. B. Jones, Dr. Maudsley, and others, are as explicitly discussed as those of Comte, Cousin, Spencer, or Sir William Hamilton.

In fact, when I see what has been attained in the last quarter century of our science, and, still more, when I see that what we are handling is the sure "open sesame" to greater and grander and more practical discoveries than have yet illustrated our science and practicalized our art, I feel more what old Sir Thomas Brown has said, "We carry with us the wonders we seek without us. There is all Africa and her prodigies in us. We are that bold and adventurous piece of nature which he that studies wisely learns in a compendium what others labor at as a divided piece and endless volume." What were his glimpses we see with lenses so magnified and the objects so near, that anticipation breaks into enthusiasm, and as all the while we are entering into the possession of great stores of scientific wealth; the rich ranges of truth we

see in the short distance are already lighted by the rays that strike against them from the light and centres already opened. Into these, those who come after are sure to dig and delve until they bring out precious ores of life-saving and health-guiding truth. Our dear college here has, we know, something of this zeal. Said a member of a theological seminary in this city to me recently: "I once in a while drop into a lecture in the College of Physicians and Surgeons to feel the thrill of that enthusiasm with which its professors lecture and its students listen."

But, my brethren, I am not here to-night to carry coals to Newcastle, even though it is pleasant to try to reflect back of the light you have reflected upon us, but only with a few words to stir up your pure hearts by way of remembrance, and to bid you God speed and good speed in this noble calling.

Though charlatans may wax worse and worse, and now and then turn even good men from the good ways of medical truth, yet it is a good day for the doctors after all, for science with its certitudes is aiding, and our art with its successes is upholding us. Legitimate medicine, as never before, is vindicating its claims to public recognition, and giving its votaries their true position in the domain of culture.

The reaper, death, is oftener stayed, and waving life, like the hill-side harvest, moves gracefully on, obedient to the breath of a new-infused vitality. God bless us all in the work upon and before us, and enable us to wait on this ministry as those not slothful in business, fervent in spirit, serving the Lord.

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